**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. to 24. (Cancelled).

25. (Amended) A method of immunizing an animal comprising providing to the animal at least one *Chlamydia* antigen[[,]] or an antigenic fragment thereof[[,]] in an amount effective to induce an immune response.

26. (Amended) The method of claim 25, wherein the provision of the at least one *Chlamydia* antigen or antigenic fragment thereof comprises:

(a) preparing a cloned expression library from fragmented genomic DNA, cDNA or sequenced genes of *Chlamydia*;

(b) administering at least one clone of the library in a pharmaceutically acceptable carrier into the animal, wherein the at least one clone is encodes the at least one *Chlamydia* antigen or antigenic fragment thereof; and

(c) expressing the at least one *Chlamydia* antigen or antigenic fragment thereof, in the animal.

27. (Amended) The method of claim[[ 26]] 76, ~~herein~~ wherein, in addition to the at least one clone, the expression library comprises at least one or more ~~polynucleotide~~ additional clone having a sequence of SEQ ID NO:6,[[ SEQ ID NO:8,]] SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:50, SEQ ID NO52:, SEQ ID NO:54, SEQ ID NO:56, SEQ ID NO: 58, or SEQ ID NO:60, or fragment thereof.

28. (Amended) The method of claim[[ 26]] 76, ~~herein~~ wherein, in addition to the at least one clone, the expression library comprises at least one or more ~~polynucleotide~~ additional clone having a sequence of SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:66, or SEQ ID NO:68, or fragment thereof.

29. (Amended) The method of claim[[ 27]] 26, wherein the ~~polynucleotide~~ at least one clone is administered by a intramuscular injection or epidermal injection.

30. (Amended) The method of claim 29, wherein the intramuscular injection is at least 1.0 μg to 200 μg of ~~the polynucleotide~~ nucleic acid from the cloned expression library.

31. (Amended) The method of claim 29, wherein a second intramuscular injection [[and]]or epidermal injection [[are]]is administered at least about three weeks after the first injection.

32. (Amended) The method of claim 25, wherein the provision of the *Chlamydia* antigen(s) comprises:

(a) ~~preparing a pharmaceutical composition comprising~~ obtaining at least one polynucleotide having a sequence encoding a *Chlamydia* antigen or an antigenic fragment thereof ~~of SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:50, SEQ ID NO52:, SEQ ID NO:54, SEQ ID NO:56, SEQ ID NO: 58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:66, or SEQ ID NO:68, or fragment thereof~~;

(b) administering the ~~pharmaceutical composition~~ polynucleotide to the animal; and

(c) expressing the one or more *Chlamydia* antigen[[s]] or antigenic fragment thereof in the animal.

33. (Amended) The method of claim[[ 32]] 78, wherein the at least one *Chlamydia* antigen has a sequence of SEQ ID NO:7~~, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, or SEQ ID NO:27~~ or an antigenic fragment thereof.

34. (Amended) The method of claim ~~33, wherein the at least one *Chlamydia* antigen has a sequence of SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:21, or SEQ ID NO:25, or an antigenic fragment thereof~~ 78, further comprising administering to the animal at least a second polynucleotide encoding a second *Chlamydia* antigen.

35. (Amended) The method of claim ~~32, wherein the at least one *Chlamydia* antigen has a sequence of SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, or SEQ ID NO:69, or an antigenic fragment thereof~~ 34, wherein the second polynucleotide is further defined as encoding a second *Chlamydia* antigen having a sequence of SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, or SEQ ID NO:69, or an antigenic fragment thereof.

36. (Original) The method of claim 32, wherein the polynucleotide is administered by a first intramuscular injection or epidermal injection.

37. (Amended) The method of claim 36, wherein the polynucleotide is administered by a second intramuscular injection [[and]]or epidermal injection.

38. (Original) The method of claim 37, wherein the intramuscular injection is at least 1.0 μg to 200 μg of the polynucleotide.

39. (Amended) The method of claim 25, wherein the provision of the *Chlamydia* antigen(s) comprises:

(a) preparing a pharmaceutical composition of at least one *Chlamydia* antigen ~~having a sequence of SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, or SEQ ID NO:69,~~ or an antigenic fragment thereof; and

(b) administering the at least one antigen or fragment into the animal.

40. (Amended) The method of claim[[ 39]] 82, ~~further defined as comprising preparing a pharmaceutical composition of~~ wherein the at least one *Chlamydia* antigen ~~having~~ has a sequence of SEQ ID NO:7~~, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, or SEQ ID NO:27,~~ or an antigenic fragment thereof.

41. (Amended) The method of claim[[ 39]] 82, ~~further defined as comprising preparing a pharmaceutical composition of at least one *Chlamydia* antigen having a sequence of SEQ ID NO:7, SEQ ID NO:11, SEQ ID NO:15, SEQ ID NO:21, or SEQ ID NO:25, or an antigenic fragment thereof~~ further comprising administering to the animal at least a second *Chlamydia* antigen.

42. (Amended) The method of claim ~~39, further defined as comprising preparing a pharmaceutical composition of at least one *Chlamydia* antigen having a sequence of SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, or SEQ ID NO:69, or an antigenic fragment thereof~~ 41, wherein the second *Chlamydia* antigen has a sequence of SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID

NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:49, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, or SEQ ID NO:69, or an antigenic fragment thereof.

43. (Original) The method of claim 25, wherein the animal is a mammal.

44. (Original) The method of claim 43, wherein the animal is a bovine.

45. (Original) The method of claim 43, wherein the animal is a human.

46. (Original) The method of claim 25, wherein the method is effective to induce an immune response against *Chlamydia psittaci.*

47. (Original) The method of claim 25, wherein the method is effective to induce an immune response against *Chlamydia pneumoniae.*

48. (Original) The method of claim 25, wherein the method is effective to induce an immune response against a *Chlamydia* species other than *Chlamydia psittaci* or *Chlamydia pneumoniae.*

49. (Original) The method of claim 25, wherein the method is effective to induce an immune response against a non-*Chlamydia* infection.

50. (Original) The method of claim 25, further comprising administering to the animal an antigen or an antigenic fragment from a *Chlamydia* species other than *Chlamydia psittaci* or *Chlamydia pneumoniae.*

51. (Original) The method of claim 25, further comprising administering to the animal an antigen or an antigenic fragment from a non-*Chlamydia* species.

52. (Original) A method of obtaining polynucleotide sequences effective for generating an immune response against the genus *Chlamydia* in an animal comprising:

(a) preparing a cloned expression library from fragmented genomic DNA of the genus *Chlamydia*;

(b) administering one or more clones of the library in a pharmaceutically acceptable carrier into the animal in an amount effective to induce an immune response; and

(c) selecting from the library the polynucleotide sequences that induce an immune response,

wherein the immune response in the animal is protective against *Chlamydia* infection.

53. (Original) The method of claim 52, further comprising testing the animal for immune resistance against a *Chlamydia* bacterial infection by challenging the animal with C*hlamydia*.

54. (Original) The method of claim 52, wherein the genomic DNA is fragmented physically or by restriction enzymes.

55. (Original) The method of claim 54, wherein the fragments are, on average, about 200-1000 base pairs in length.

56. (Original) The method of claim 52, wherein each clone in the library comprises a gene encoding a mouse ubiquitin fusion polypeptide designed to link the expression library polynucleotides to the ubiquitin gene.

57. (Original) The method of claim 52, wherein the library is about $1x10^3$ to about $1x10^6$ clones.

58. (Original) The method of claim 57, wherein the library is $1x10^5$ clones.

59. (Original) The method of claim 52, wherein about 0.01 μg to about 200 μg of DNA, cDNA or sequenced gene from the clones is administered into the animal.

60. (Original) The method of claim 59, wherein the genomic DNA, cDNA or sequenced gene is introduced by intramuscular injection or epidermal injection.

61. (Original) The method of claim 52, wherein the fragmented genomic DNA, cDNA or sequenced genes of *Chlamydia* further comprises a promoter operably linked to the DNA that permits expression in a vertebrate animal cell.

62. to 73. (Cancelled).

74. (New) The method of claim 25, further defined as comprising providing to the animal at least one *Chlamydia* antigen having a sequence of SEQ ID NO:9 or an antigenic fragment thereof.

75. (New) The method of claim 74, wherein the at least one *Chlamydia* antigen having a sequence of SEQ ID NO:9 or antigenic fragment thereof is further defined as having a sequence of SEQ ID NO:7 or an antigenic fragment thereof.

76. (New) The method of claim 26, wherein the at least one clone, has a sequence of SEQ ID NO:8 or fragment thereof.

77. (New) The method of claim 76, wherein the at least one clone comprising a nucleic acid sequence of SEQ ID NO:8 or a fragment thereof is further defined as comprising a nucleic acid sequence of SEQ ID NO:6 or a fragment thereof.

78. (New) The method of claim 32, wherein the provision of the *Chlamydia* antigen(s) is further defined as further comprising:

(a) obtaining at least one polynucleotide having a sequence encoding an antigen having a sequence of SEQ ID NO:9 or an antigenic fragment thereof;

(b) administering the polynucleotide to the animal; and

(c) expressing the one or more *Chlamydia* antigen having a sequence of SEQ ID NO:9 or an antigenic fragment thereof in the animal.

79. (New) The method of claim 78, wherein the polynucleotide having a sequence encoding an antigen having a sequence of SEQ ID NO:9 or an antigenic fragment thereof has a sequence of SEQ ID NO:8 or fragment thereof.

80. (New) The method of claim 33, wherein the polynucleotide having a sequence encoding an antigen having a sequence of SEQ ID NO:7 or an antigenic fragment thereof is further defined as having a sequence of SEQ ID NO:6 or fragment thereof.

81. (New) The method of claim 35, wherein the second polynucleotide has a sequence of SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:50, SEQ ID NO52:, SEQ ID NO:54, SEQ ID NO:56, SEQ ID NO: 58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:66, or SEQ ID NO:68, or fragment thereof.

82. (New) The method of claim 39, wherein the provision of the *Chlamydia* antigen(s) is further defined as comprising:

(a) preparing a pharmaceutical composition of at least one *Chlamydia* antigen having a sequence of SEQ ID NO:9 or an antigenic fragment thereof; and

(b) administering the at least one antigen or fragment into the animal.